

Abu Qasim Al- Zahrawi

Albucasis

The Father of the Surgery

(936-1013)

M. Basheer Ahmed M.D.

Published in Journal of the Tarrant County Medical Society in February 2009

During 8th to 15th century when Europe was in dark ages a great civilization was flourishing in Middle-East and southern part of Europe under Muslim empire. It was from Muslim Spain, that the era of modern civilization dawned over the whole Europe. Cordoba was the capital of Spain in 9th century which became the center of learning. The city had several teaching institutions and had the largest collection of books in the then known world which included the original works of Aristotle and other great philosophers and scholars. European scholars flocked to the universities in Baghdad and Cordoba and returned home to spread the knowledge they gained. During this period a great surgeon who is truly recognized as father of surgery was born in Cordoba.

Abu Qasim ibn al-Zahrawi, also known in the West as Abul Casis, was born in the town of Al Zahra located six miles northwest of Cordoba, Spain. His ancestors were Arabs who settled in Spain in the 8th century. He lived most of his life in Cordoba where he received his education. He taught and practiced medicine and surgery in Cordoba and became the physician of Caliph. The street where he lived is named after him (Calle Abucasis) and his house has been preserved by the Spanish government. He is considered as father of surgery as he became famous throughout Europe for teaching new methods of surgery and inventing several instruments which were used in most of Europe until 17th - 18th century. In addition to his knowledge of medicine and surgery he was very skilled in the use of simple and compound remedies and thus he was also known as the "Pharmacist Surgeon". He wrote extensively on cardiac drugs, emetics, laxatives and cosmetology. Translation of Al Zahrawi's work "Liber Servitoris" provide readers an explanation of preparing simple and compound complex drugs that generally used in those days¹.

His greatest contribution to the history of medicine is his famous book "Kitab-al-Tasrif", a thirty volume encyclopedia on medicine which is based on his personal experiences in practice of medicine for 50 years. It was first published in the year 1000 and it covered a

broad range of topics from dentistry to child birth. He had a sound knowledge and understanding of relevance of anatomy in surgical procedures. In the introduction of his book *Al Tasrif*, Zahrawi stated that learning the art of surgery is lengthy and a good practice in surgery required sound knowledge of anatomy. "He who devoted himself to surgery must be versed in the science of anatomy."² However the anatomical study of human body was problematic because it required dissection and a number of religious scholars opposed dissection of human body since it implied mutilation and disrespect of the diseased person. In spite of this opposition Al Zahrawi and other scholars made frequent references to dissection of both animal and human body³. This shows an intellectual open mindedness in earlier Islamic time. During this period of Islamic history the Muslim Scientist created a non-dogmatic atmosphere that encouraged people to debate, share ideas and seek new knowledge and examining evidence⁴.

The first two volumes of his book *Al-Tasrif* were primarily devoted to surgery. The first dealt with cautery which was used extensively in Arabia and it also contained a detailed description of the use of various instruments. There was also an extensive description of incisions, perforations, wounds, and the healing process. Al Zahrawi had made several useful additions to the art of surgery. He described various types of thread (including catgut) for stitching of wounds. Al Zahrawi's use of catgut for internal stitching is still practiced in modern surgery. He pointed out for the first time the dangers associated with amputation above knee and above elbow. He is one of the first physicians who explained hemorrhage which cannot be easily controlled, the disease known today as hemophilia. He also pointed out the hereditary nature of this disease.

The second volume of *Al-Tasrif* was devoted to the description of lithotritry, lithotomy, fractures, dislocations, and special treatment of fracture of pelvis. He wrote extensively about injuries of bones and joints, fractures of the nasal bones and the vertebrae. In fact Kocher's method for fixing a dislocated shoulder was explained by Al Zahrawi long before Kocher. He also described tonsillectomy and tracheotomy operations he had performed⁴.

The third volume described detailed procedures of performing ophthalmic operations including "cataract". Al Zahrawi was also an expert dental surgeon. He discussed the non-aligned teeth and showed a way to correct them. He also developed technique of replacing defective teeth.

105 chapters were devoted towards describing the details of various operative procedures including amputation, and the crushing of bladder stones. He used the grooved probe for dislodging urethral obstructions and invented sponge tipped probe for dislodging foreign particles from the gullet. He also used a syringe for irrigation of the bladder and the

cleaning of the ear. Al Zahrawi also wrote about obstetrics and described several instruments used for delivery. He was the first to describe the welcher position in obstetrics. His book contains the pictures of gynecological instruments used in the 10th century e.g. vaginal speculum and instruments to perform craniotomy for bringing out the dead fetus⁵. He was the first to write about ectopic pregnancy.

He also treated hydrocephalus in young children by making a small hole in the skull by means of cauterization to extract the fluid. The last volume of his encyclopedic book Al-Tasrif contained a description of 200 surgical instruments. The majority of these instruments were devised, designed, and used by Al Zahrawi himself.^{6,7,8} He included illustrations of the surgical instruments. These figures probably were the first of their kind that survived till now and they constituted a unique contribution to the history of surgery.

He was considered one of the early leading “plastic surgeon” as he performed many plastic surgery procedures. In the 11th chapter of volume 30 of his book he put many principles in that surgical field⁹.

Al Zahrawi’s writings were translated into Latin and were used as the standard book of medicine in Europe for several centuries. His writings on anatomy and surgery raised him to the level of Hippocrates and Galen. In fact his work represented the first step of surgery as an independent specialty away from medicine, grounded on the knowledge of anatomy. Al Tasrif became famous in the universities of Europe in the middle ages and was the chief reference work for surgery in the universities of Italy and France.¹⁰

Al-Zahrawi was the first in Muslim Spain to establish a large medical school. He was very meticulous about maintaining a high standard of education and medical ethics. Al Zahrawi emphasized the importance of a good doctor patient relationship insuring the safety and trust of the patient irrespective of their social status. Al Zahrawi was one of the first scholars in Islam to promote nursing and encouraged women to become midwives. Because of his enthusiasm and devotion, good hospitals and nursing care was enhanced in Andalusia (Spain)⁹.

Guy de Chauliac, a fourteenth century French surgeon, quoted Al-Tasrif over 200 times in his book, “The Great Surgery.” Pietro Argallata, a fifteenth century European surgeon, says of him, “Without doubt he was the chief of all surgeons.” Jaques Delechamps, another sixteenth century French surgeon, made extensive use of Al Zahrawi’s writings in his elaborate commentary, confirming the tremendous contributions of Al Zahrawi in the field of surgery. Al – Zahrawi’s work was initially translated in Latin by Gerard of Cremona in 1187 and since then for the next 5 centuries it was translated in Hebrew, French, English and other

European languages. After the introduction of printing press, a good number of Arab writings were published in Latin Translation. Quite a few of these books passed through many editions in a very short period of time. Many of these translated books are still available in the libraries in Berlin, London, Paris and Washington D.C.¹¹. These additions no doubt constitute a proof as to the wide readers of these books throughout the world.

Dr. Basheer Ahmed is the Former Professor of Psychiatry, South Western Medical School, Dallas, Texas and has been in private practice of psychiatry in Fort Worth, Texas since 1980. He is the founder and chairman of Muslim Community Center for Human Services, North Texas which provides free medical and social services to indigent residents in this area. He recently edited two books "Muslim Contribution to World Civilization" and "The Islamic Intellectual Heritage and its Impact on the West" He can be reached at mbahmed03@hotmail.com

REFERENCES

- 1: Levey M. (1973), Early Arabic Pharmacology, E. J. Brill, Leiden.
- 2: Jones, PM. "Medieval medical miniatures." London: The British Library, in association with The Wellcome Institute for the History of Medicine; 1984 – Page 27-29
- 3: Savage-Smith E. "Attitude toward dissection in medieval Islam." J Hist Med Allied Sci. 1995;50: 67-110
- 4: Hehmeyer, I. & Khan, A. "Islam's Forgotten Contribution to Medical Science" Canadian Medical Association Journal 176. 2007
- 5: Gimovsky, M.L., Soo Han, J "Reducing the medico legal risk of vacuum extraction" OBG management Volume 19 No. 6, June 2007, page 84
- 6: Lunde, Paul. "Science in Al Andalus" Published in Science: The Islamic Legacy. Aramco – Washington D.C. 1988, page 21-26
- 7: Azmi, A.A., "Contribution of Muslim Physicians in the Middle Ages", Hamdard Vol. XXIX 1-2 1988 – Hamdard Publications, Karachi, Pakistan
- 8: Ashoor, A.Z. "Muslim Medical Scholars and their Work" Islamic World Medical Journal. January 1984, Pages 49-50
- 9: Al Ghazal S. K. "Zahrawi and Plastic Surgery", ArabMed Journal, Issue 2(12); 2002.
- 10: Hayek, Simon. "How Al- Zahrawi Reached the Occident" Islamic World Medical Journal. February 1984, Page 49-52
- 11: Hamarneh, Sami K. "Vistas of Arabic Healing Arts in Theory and Practice", Hamdard

